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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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07/29/2003

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EXAMINER

LIEW, ALEX KOK SOON

ART UNIT

PAPER NUMBER

2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/628,286	Applicant(s) AKAHORI, SADATO	
	Examiner ALEX LIEW	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-23 is/are rejected.
- 7) ☒ Claim(s) 7-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/29/03, 7/15/08, 8/27/08</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The amendment filed on 11/12/08 is entered and made of record.
2. Response to applicant's argument

The applicant stated on page 11, "Moreover, Applicants submit that Ihara doesn't disclose recognizing the types of the respective block regions, or recognizing the type of each of the object regions based on a result of the totaling."

The examiner agrees; Marshall (US pat no 4,208,652) and Tu (US pat no 5,841,902) disclose the claimed invention. Marshall discloses on an image processing method comprising:

generating object regions by dividing an image into objects, and generating a plurality of block regions each having one pixel and having a smaller area than any one of the object regions by dividing each of generated object regions (column 2, lines 4-6, and figure 2);

recognizing the types of the respective block regions (see column 2, lines 7-10, each pixel is identified as black or white pixel);

totaling up occurrence frequency of each of the types of the respective block regions in each of the object regions (column 2, lines 13-16, white and black elements are counted); and

recognizing the type of each of the object regions based on a result of the totaling (see column 2, lines 17-25, total counts of black and white pixels are use to generate feature string).

Marshall does not disclose generating object regions by dividing an image into objects, and generating a plurality of block regions each having a predetermined number of

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pixels. Tu discloses generating object regions by dividing an image into objects, and generating a plurality of block regions each having a predetermined number of pixels (figure 5). One skilled in the art would include examining blocks that has more than one pixel because to identifying every single pixel in the image will take more time and more processing power.

Claim Objections

Claims 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcomes U.S.C. 101 rejections discussed below.

With regards to claim 2, the examiner cannot find any applicable prior and / or any suggestions disclosing calculating a type reliability value representing *likelihood* of each of the object regions being of the recognized type in combination with the rest of the limitations of claim 2 and all of claim 1.

With regards to claim 7, see rationale for claim 2.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 2, 11, 13, 15, 17, 19 and 20 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the method including steps of generating, recognizing and totaling is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine. There is no ‘particular machine’ or any computing device included in the listed claims.

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US pat no 4,208,652) in view of Tu (US pat no 5,841,902).

With regards to claim 1, Marshall discloses on an image processing method comprising:

generating object regions by dividing an image into objects, and generating a plurality of block regions each having one pixel and having a smaller area than any one of the object regions by dividing each of generated object regions (column 2, lines 4-6, and figure 2);

recognizing the types of the respective block regions (see column 2, lines 7-10, each pixel is identified as black or white pixel);

totaling up occurrence frequency of each of the types of the respective block regions in each of the object regions (column 2, lines 13-16, white and black elements are counted); and

recognizing the type of each of the object regions based on a result of the totaling (see column 2, lines 17-25, total counts of black and white pixels are use to generate feature string).

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Marshall does not disclose generating object regions by dividing an image into objects, and generating a plurality of block regions each having a predetermined number of pixels. Tu discloses generating object regions by dividing an image into objects, and generating a plurality of block regions each having a predetermined number of pixels (figure 5). One skilled in the art would include examining blocks that has more than one pixel because to identifying every single pixel in the image will take more time and more processing power.

With regards to claim 3, see the rationale for claim 1.

3. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 3 further in view of Holter (US pat no 4,731,859).

With regards to claim 4, Marshall and Tu disclose all the limitations discussed in claim 3, but does not disclose block characteristic quantity extraction, mapping means and type output means. Holter reads on an image processing apparatus according to claim 3, wherein the block region recognition means comprises

block characteristic quantity extraction means for extracting block characteristic quantities from each of the block regions (see figure 5, the blocks extracted contains a predetermined number of pixels based on the sized of the objects);

mapping means for mapping the block characteristic quantities into a two-dimensional space (see figure 6, the image is in two dimension);

type output means having a type distribution map defines the types at respective coordinates in the two-dimensional space, the type output means for outputting the types indicated by the type distribution map at coordinates of the block characteristic quantities mapped in the two-dimensional space as the types of the block regions (see figure 6, each block extracted is its own color, red, green and blue).

One skilled in the art would include type output means because to identify regions which are similar to each other, and see whether these regions are adjacent to each, so these similar adjacent regions are combined to create a ore whole object image; the more portions of an object image is attached together the more accurate the recognition results will be.

With regards to claim 6, an extension to the arguments to claim 4, Holter discloses an image processing apparatus according to claim 3, wherein the block characteristic quantity extraction means extracts a color (see fig 6 – each block in the image has its own color component), a lightness component (see fig 6 – each pixel in image in fig 6 represents the intensity of the image at the position) and a structural component of each of the block regions as the block characteristic (see fig 6 – each block regions in fig 6 image are rectangles).

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5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 4 further in view of Shiratani (US pat no 6,418,238).

Marshall and Tu disclose all of the claim elements / features as discussed above in rejection for claim 4 and incorporated herein by reference, but fail to disclose self-organizing map. Shiratani discloses a two-dimensional space is a self-organizing map wherein neurons having a learning ability are laid out in the form of a matrix (see column 10, lines 33 – 36). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include self-organizing map to learn because to adapt to multiple different kind of image data to, so the system does not require a manual image processing change on the image, where it can be done by the learning system.

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 1 further in view of Nagarajan (US pat no 7,039,232).

With regards to claim 11, Marshall and Tu disclose all the limitations discussed in claim 1, but do not disclose recognizing the type of each of the object regions is determined as the type of the block regions occurring most frequently therein. Nagarajan discloses recognizing the type of each of the object regions is determined as the type of the block

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regions occurring most frequently therein (see column 2, lines 34 to 42, one with the most predominant tags gets assign a new tag). One skilled in the art would include choosing the most predominant occurrence region in an image because the region type with the most predominant regions is either an object image, or the background of the image, allowing the system identifies areas in the image which is the foreground or background, which improve object detection in an image.

With regards to claim 12, see the rationale and rejection for claim 11.

6. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 1 further in view of Bishop (US pat no 6,603,877).

With regards to claim 13, Marshall and Tu disclose all the limitations discussed in claim 1, but does not disclose calculating a type reliability value representing likelihood of each of the object regions being of the recognized type. Bishop discloses calculating a type reliability value representing likelihood of each of the object regions being of the recognized type (see column 2, lines 1 to 15, the preliminary likelihood value is read as type reliability value). One skilled in the art would include calculating a type reliability value because to examiner those higher likelihood values to find if there is any defect areas within the object image or foreground image, which improves quality of the image.

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With regards to claim 14, see the rationale and rejection for claim 13.

7. Claims 15, 16 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 1 further in view of Nakao (US pat no 5,999,647).

With regards to claim 15, Marshall and Tu disclose all the limitations of claim 1; Marshall suggest prior to dividing said image into individual picture elements, it perform contrast enhancements (figure 3, 64), but do not disclose generating the object regions by dividing the image into the objects, wherein the sizes of the object are unknown. Nakao discloses generating the object regions by dividing the image into the objects, wherein the sizes of the object are unknown (figures 7A-E, sizes of each letters vary). One skilled in the art would generating object regions because each region can be systemically identified which improve efficiently.

With regards to claim 16 see the rationale for claim 15.

With regards to claim 23 see the rationale for claim 15.

8. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 1 further in view of Tamagaki (US pat no 5,608,543).

With regards to claim 17, Marshall and Tu disclose all the limitations of claim 1; Tu discloses predetermined number of pixels is a plurality of pixels in block region (figures 7A-E), but does not disclose extracting color component representing a color among red, blue or green of each of the plurality of the block regions and recognizing the types of the respective block regions based on the extracted color component. Tamagaki discloses extracting color component representing a color among red, blue or green of each of the plurality of the block regions and recognizing the types of the respective block regions based on the extracted color component (figures 38A-C and column 34, lines 57-63). One skilled in the art would include such feature because to provide image data information, color, to improve image recognition.

With regards to claim 18, see the rationale for claim 17.

9. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall '652 in view of Tu '902 as applied to claim 1 further in view of official notice (MPEP 2144.03).

With regards to claims 19-22, Marshall and Tu disclose all the limitations of claim 1, but do not disclose capturing natural images comprising an image of a sky, tree or building. However, it is well known to capture image or sky, tree or building. One skilled in the art

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would include such feature to categorize type of buildings in cities so, tourist will have an idea as to what the building look like and how to get to said buildings.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX LIEW whose telephone number is (571)272-8623 or cell (917)763-1192. The examiner can be reached anytime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art
Unit 2624

Alex Liew

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